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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,339	12/15/2003	Rajesh K. Saini	2001-IP-005484U1P1	3700
71/407 ROBERT A. KENT P.O. BOX 1431 DUNCAN, OK 73536	7590 06/30/2010			
EXAMINER				
LIGHTFOOT, ELENA TSOY				
ART UNIT		PAPER NUMBER		
1715				
NOTIFICATION DATE		DELIVERY MODE		
06/30/2010		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/736,339

Applicant(s)

SAINI ET AL.

Examiner

ELENA Tsoy LIGHTFOOT

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 42-61 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 42-61 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Response to Amendment

Amendment filed on May 18, 2010 has been entered. Claims 42-61 are pending in the application. Claims examined on the merits are 42-61.

Specification

The amendment to the disclosure filed on May 18, 2010 has been entered as correcting informalities.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 42-48 and 55-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen et al (US 6,209,643) in view of Lee et al (US 6,817,414) and Still et al (US 7,166,560) for the reasons of record set forth in paragraph 2 of the Office Action mailed on 3/10/2010.

As to amendment, as was discussed in the previous Office Action, Lee et al and Still et al teach the use of claimed (*substantially water insoluble*) lactide, glycolide, polylactic acid (polylactide –see column 3, lines 29-31), polyglycolic acid (polyglycolide) as an acid-releasing degradable material: **Lee et al** and teaches that replacing conventional gravel pack sand typically used for gravel packing by polymerized *alpha-hydroxycarboxylic acid coated proppants* such as **polyglycolic-acid**-coated sand, provides under downhole conditions, the acidic by-product generated from the hydration of polyglycolic-acid-coated sand that can break down acid-soluble and/or acid-breakable components embedded in the filter cake thereby enhancing the filter cake

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removal (See column 2, lines 51-64); **Still et al** teaches that the use of claimed *lactide*, *glycolide*, polylactic acid (polylactide –see column 3, lines 29-31), *polyglycolic acid* (polyglycolide –see column 3, lines 33-35), a copolymer of polylactic acid and polyglycolic acid, a copolymer of glycolic acid with other hydroxy-, carboxylic acid-, or hydroxycarboxylic acid-containing moieties, a copolymer of lactic acid with other hydroxy-, carboxylic acid or hydroxycarboxylic acid-containing moieties, or mixtures of the preceding provides a desired controlled release of acid by hydrolysis and dissolution (See column 2, lines 31-40).

As to an acid-releasing degradable material being introduced as a coating solution in a solvent or plasticizer, Nguyen et al teaches that a liquid or solution of a tackifying compound is incorporated in an intimate mixture (i.e. as a *substantially uniform dispersion of the components in the mixture*) with a particulate material such as conventional proppants or gravel packing materials together with an optional hardenable resin and introduced into a subterranean formation (See column 4, lines 3-15). The uniform dispersion of the components is made by mixing the proppants or gravel packing materials with a liquid or solution of a tackifying compound (See column 4, lines 4-7; column 8, lines 8-12) in a solvent (See column 5, lines 10-13) such as alcohol (See column 5, lines 55-56) . The treatment chemical may be introduced in a similar manner (See column 8, lines 12-15). In other words, Nguyen et al teaches that the treatment chemical may be introduced as a **solution** in a suitable solvent.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have introduced the water-insoluble treatment chemical

in Nguyen et al in view of Lee et al and Still et al as a **solution** in a suitable solvent with the expectation of providing the desired uniform dispersion of all components, as taught by Nguyen et al.

3. Claims 42-48 and 55-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen et al '643 in view of Lee et al '414 and Still et al '560, as applied above, and further in view of Murphey et al (US 4,829,100) for the reasons of record set forth in paragraph 3 of the Office Action mailed on 3/10/2010.
4. Claims 42-48 and 55-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen et al '643 in view of Lee et al '414 and Still et al '560, as applied above, and further in view of McDougall et al (US 5,192,615) for the reasons of record set forth in paragraph 4 of the Office Action mailed on 3/10/2010.
5. Claims 42-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen et al '643 in view of Lee et al '414 and Still et al '560, as applied above, and further in view of Mikos et al (WO 9425079A1) for the reasons of record set forth in paragraph 5 of the Office Action mailed on 3/10/2010.

Response to Arguments

Applicant's arguments filed May 18, 2010 have been fully considered but they are not persuasive.

A-C. Claims 42-48 and 55-60 over Nguyen in view of Lee and Still/ further in view of Murphey et al or McDougall et al

Solution of acid-releasing degradable material in a solvent

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Applicants submit that the Examiner has not established a prima facie case of obviousness, in that the combination of Nguyen, Lee, and Still does not establish that each limitation of the present claim was known in the prior art. Nguyen does not discuss "combining an acid-releasing degradable material with a solvent or a plasticizer to create a coating solution" as required by independent claims 42 and 49, or "combining an acid-releasing degradable material with a plasticizer to create a coating solution" as required by independent claim 55.

The Examiner respectfully disagrees with this argument. The uniform dispersion of the components is made by mixing the proppants or gravel packing materials with a liquid or solution of a tackifying compound (See column 4, lines 4-7; column 8, lines 8-12) in a solvent (See column 5, lines 10-13) such as alcohol (See column 5, lines 55-56). The treatment chemical may be introduced in a similar manner (See column 8, lines 12-15). In other words, Nguyen et al teaches that the treatment chemical may be introduced as a **solution** in a suitable solvent. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have introduced the water-insoluble treatment chemical in Nguyen et al in view of Lee et al and Still et al as a **solution** in a suitable solvent with the expectation of providing the desired uniform dispersion of all components, as taught by Nguyen et al.

Dependent claim 48

Applicants disagree with the Examiner that poly(orthoester) is optional. Specifically, the limitation is not optional because claim 48 requires the acid-releasing degradable material to comprise a poly(orthoester). Applicants request that the limitation be given the proper patentable weight during prosecution.

The Examiner respectfully disagrees with this argument. The poly(orthoester) of claim 48 is optional, because claim 48 depends on claim 42 which recites poly(orthoester) as one of *optional* members of Markush Group.

D. Claims 42-61 over Nguyen in view of Lee and Still, and further in view of Mikos

Applicants note that Mikos describes the degradation products as "harmless metabolites" and therefore disagree with the Examiner that "it is well known in the art

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that all these polymers hydrolyze with the release of an acid." Applicants respectfully request that the Examiner cite a reference as documentary evidence in support of the position that all compounds falling within the listed genus descriptions would hydrolyze with the release of an acid or provide an affidavit to the same effect in accordance with MPEP § 2144.03 and 37 C.F.R. 1.104(d)(2).

Upon Applicants' request, the following references are provided here as an evidence to support the Examiner's position:

US 6277408 to Wellingshoff teaches that *an acid releasing agent* that is capable of being **hydrolyzed** by ambient moisture and adhered onto a particle, incorporated in a coating to be applied to a particle, include degradable **polyesters** such as polylactic acid, polyglycolic acid, polyacrylic acid and copolymers or blends thereof, poly-.beta.-hydroxybutyrate, polylactone, and an anhydride or phosphate ester blended with or grafted to polypropylene, polyethylene or polystyrene. (See column 21, lines 39-44, 60-68). Note that claimed polyorthoester is also *polyester*.

US 20050267565 to Dave et al teaches that polyorthoesters and polyanhydrides release acid upon hydrolysis (See P2). Note that filing date of Dave et al is irrelevant to chemistry of polyorthoesters and polyanhydrides.

Dave et al teaches: "Bioabsorbable implants are typically made from polymeric materials such as lactone-based polyesters. These bulk eroding materials breakdown over time due to chemical hydrolysis to produce water-soluble, low molecular weight fragments. These fragments are then attacked by enzymes to produce lower molecular weight metabolites. Acid fragments that are produced during degradation of the polymer backbone have shown to cause local tissue inflammation. The inflammation has been observed in vascular systems as well and the extent of inflammation depends on the pH of the acid that in turn is dependent on the type and amount of acid produced during degradation. This inflammation is not typically observed in polymers that degrade by surface erosion (such as **polyorthoesters and polyanhydrides**) as the amount of acid released at a given time is small to cause tissue inflammation." (See P2).

E. Prior Art Made of Record

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Applicants note that Brown has a filing date of April 8, 2004 while the present application has a filing date of December 15, 2003. As such, Brown is not a proper prior art reference and cannot be used to reject the claims of the present application or to show the state of the art at the time of the invention. As such, Applicants respectfully request that the Examiner withdraw Brown from consideration.

The Examiner respectfully disagrees with this argument. First of all, in contrast to Applicants' assertion, Brown is not used to *reject* the claims of the present application. Brown is prior art of record that is not relied upon but was considered to be *pertinent* to applicant's disclosure.

Second, Brown is cited to show that polylactic acid, polyglycolic acid, copolymers of polylactic and polyglycolic acid, polyepsilon caprolactone, polyhydroxy butyric acid, polyorthoesters, polyacetals, polydihydropyrans, polycyanoacrylates are **biodegradable** polymers such that the filing date of Brown is irrelevant to their biodegradability.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELENA Tsoy LIGHTFOOT whose telephone number is (571)272-1429. The examiner can normally be reached on Monday-Friday, 9:00AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy Lightfoot, Ph.D.
Primary Examiner
Art Unit 1715

June 28, 2010

/Elena Tsoy Lightfoot/